

WHAT IS CLAIMED IS:

1                   1.     A tire monitoring apparatus for mounting on a vehicle wheel  
2     that is configured to have a tire mounted thereon, the wheel having a first opening,  
3     the apparatus comprising:  
4                   a tire monitor for sensing a tire parameter, the tire monitor including  
5     a housing having a second opening;  
6                   a tire valve stem that is configured to extend through the first and  
7     second openings, the valve stem having an aperture; and  
8                   a clip that is configured to be inserted into the aperture and engage  
9     the housing to attach together the tire monitor and the valve stem.

1                   2.     The apparatus of claim 1 wherein the aperture includes first  
2     and second portions, the first portion being configured to receive the clip, and the  
3     second portion being configured to allow air to pass around the clip to thereby allow  
4     air to travel through the valve stem.

1                   3.     The apparatus of claim 2 wherein the first portion of the  
2     aperture comprises a generally rectangular slot, and the second portion of the  
3     aperture comprises a groove disposed adjacent to the slot.

1                   4.     The apparatus of claim 1 wherein the clip comprises a top  
2     portion and a cantilevered portion extending from the top portion, the cantilevered  
3     portion being configured to extend into the aperture of the valve stem.

1                   5.     The apparatus of claim 4 wherein the cantilevered portion  
2     comprises a curved section that is configured to extend into the aperture of the valve  
3     stem.

1                   6.     The apparatus of claim 1 wherein the clip includes an opening,  
2     and the housing of the tire monitor includes a tab that extends into the opening of  
3     the clip when the clip is inserted into the aperture of the valve stem.

1                   7.     The apparatus of claim 1 wherein the housing of the tire  
2 monitor comprises a cylindrical surface, and the clip comprises a cylindrical surface  
3 that is engageable with the cylindrical surface of the housing when the clip is  
4 inserted into the aperture of the valve stem.

1                   8.     The apparatus of claim 1 wherein the housing of the tire  
2 monitor includes a pocket for receiving the clip and multiple ribs that are configured  
3 to allow the clip to slide into the pocket.

1                   9.     The apparatus of claim 8 wherein each rib comprises a curved  
2 surface that is configured to provide a line of contact between the rib and the clip.

1                   10.    The apparatus of claim 1 wherein the clip comprises two outer  
2 portions and an inner portion spaced away from the outer portions, the inner portion  
3 being configured to be inserted into the aperture of the valve stem, and the outer  
4 portions being configured to engage the housing of the tire monitor when the inner  
5 portion is inserted into the aperture of the valve stem.

1                   11.    The apparatus of claim 1 wherein the valve stem includes a  
2 threaded portion, and the apparatus further comprises a threaded fastener that is  
3 engageable with the threaded portion of the valve stem and the wheel to thereby  
4 draw the clip against the housing of the tire monitor.

1                   12.    A tire monitoring apparatus for mounting on a vehicle wheel  
2 that is configured to have a tire mounted thereon, the wheel having a first opening,  
3 the apparatus comprising:  
4                   a tire monitor for sensing pressure in the tire, the tire monitor having  
5 a housing with a cylindrical surface, the housing further having a second opening  
6 that extends through the cylindrical surface;  
7                   a tire inflator valve assembly that is configured to extend through the  
8 first and second openings, the valve assembly having a longitudinal axis and first  
9 and second ends, the valve assembly further having a threaded portion disposed  
10 proximate the first end, and an aperture disposed proximate the second end;

11                   a clip having a main body and a cantilevered portion extending from  
12 the main body, the cantilevered portion being configured to be inserted into the  
13 aperture of the valve assembly such that the cantilevered portion extends generally  
14 transverse to the axis of the valve assembly, the main body having a cylindrical  
15 surface that is engageable with the cylindrical surface of the housing of the tire  
16 monitor when the cantilevered portion is inserted into the aperture of the valve  
17 assembly; and  
18                   a threaded fastener that is engageable with the threaded portion of the  
19 valve assembly for drawing the main body of the clip against the cylindrical surface  
20 of the housing of the tire monitor.